A revision of the Suctoria (Ciliophora, Kinetofragminophora) 5. The *Paracineta* and *Corynophrya* problem

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Synopsis

The continual drift in the diagnosis of the unrelated genera *Paracineta* and *Corynophrya* causes considerable taxonomic problems and confusion at several levels in classification. The transfer of *Paracineta crenata* and *Paracineta homari* into the genus *Actinocyathula* has allowed the present review to be based, as far as possible, on the original diagnoses of the genera. In addition to those mentioned above, the species of four other genera, *Pelagacineta, Loricophrya, Anthacineta* and *Flectacineta* are reviewed since some have been previously associated in some way with the *Paracineta–Corynophrya* problem in the past.

A new diagnosis for each genus is given with a key to its constituent species and where appropriate a genotype has been designated to encourage taxonomic stability. All species are described and figured.

Introduction

There is still considerable confusion and disagreement on the generic diagnoses of *Paracineta* Collin, 1911 and *Corynophrya* Kahl, 1934. The purpose of this publication is to review the species involved, to amend previous diagnoses and to assign type species to the genera in an attempt to establish taxonomic stability. The genus *Paracineta* was erected in order to take account of those loricate suctoria with an apical group of tentacles that reproduced by external budding and that were longitudinally symmetrical. In his original generic description, Collin (1911) included the three species *Paracineta crenata* (Fraipont, 1878), *P. homari* (Sand, 1899) and *P. patula* (Claparède & Lachmann, 1861) but failed to designate the type species. In his later taxonomic revision, Collin (1912) transferred several more species into the genus including *Paracineta limbata* (Maupas, 1881), *P. vorticelloides* (Fraipont, 1878), *P. jorisi* (Sand, 1895), *P. parva* (Sand, 1899), *P. multitentaculata* (Sand, 1895), *P. livadiana* (Mereschkowsky, 1881), *P. elegans* (Imhoff, 1883) and *P. bifaria* (Stokes, 1887). Collin (1911, 1912) stressed that although external budding was a prime feature of the genus both *Paracineta crenata* and *P. homari* in fact reproduced by semi-external budding (the semi-invaginative budding of Batisse, 1975). At the time this method was thought to be only a slight variation on the external budding theme and of little significance.

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Modern workers however consider the different modes of budding to be of great taxonomic importance and that there is a distinct difference between semi-invaginative and external budding. Nevertheless, the two species remained in their original genus until Batisse (1975) suggested their transfer into the genus *Corynophrya* Kahl, 1934 which had been originally erected for a heterogenous assemblage of aloricate suctoria reproducing by internal budding. Although the suggestion by Batisse (1975) may appear strange, since the two species in question are loricate and reproduce differently, it should be pointed out that the generic diagnosis of *Corynophrya* has drifted considerably since that originally outlined by Kahl (1934). However, Batisse (1975) had not taken into account that *Paracineta crenata* can be regarded to be congeneric with *Actinocyathus cidaris* Kent, 1882 and would be more neatly transferred into the latter older genus. Jankowski (1981) is also apparently of a similar opinion since he suggested that the name *Actinocyathus* might replace that of *Paracineta*. The name *Actinocyathus* was shown by Corliss (1960) to be preoccupied and he suggested the replacement name *Actinocyathula* Corliss, 1960.

Kahl (1934) erected the genus *Corynophrya* to include the mostly marine assemblage of suctoria which Collin (1912) had gathered together in his third group within the genus *Discophrya*. The major diagnostic features were that they reproduced by internal budding, did not possess a lorica, were rounded in cross-section, had one type of tentacle that was restricted to the apical surface and had a rounded, compact nucleus. According to Kahl (1934) the following species held these features in common, *Corynophrya marina* (Andrusov, 1886), *C. conipes* (Mereschkowsky, 1879), *C. macropus* (Meunier, 1910), *C. lyngbyi* (Ehrenberg, 1833), *C. francottei* (Sand, 1895), *C. campanula* (Schröder, 1907), *C. interrupta* (Shröder, 1907) and *C. stueri* (Schröder, 1911). Kahl agreed with Collin (1912) and placed the genus in the family Discophryidae where it remained until Batisse (1975) transferred it into the Thecacinetidae. More recently Jankowski (1978) has transferred three of the species, which clearly have elongate to branched macronuclei and multiple endogenous buds, into the new genus *Pelagacineta* Jankowski, 1978.

Genus *ACTINOCYATHULA* Corliss, 1960

Actinocyathus Kent, 1882
Corynophrya sensu Batisse, 1975
Paracineta sensu Jankowski, 1978
Faltacineta Jankowski, 1982

The genus *Actinocyathus* was erected by Kent (1882) for those resembling *Ephelota* in general form but borne upon a stalked lorica. Kent's (1882) diagnosis also stated that the tentacles were retractile but not capitate. However, Kent further stated in his description of the type species *Actinocyathus cidaris* Kent, 1882 that he only saw the tentacles in the contracted state which leaves the absence of capitate tentacles open to considerable doubt. There seems to be little doubt that the organism depicted by Dons (1922) which he calls *Paracineta crenata* (Fraipont) forma *pachyteca* Collin (Dons mispelling of *pachytheca*) is congeneric with *Actinocyathus* and conspecific with *Acineta crenata* Fraipont, 1878. In view of this the two species *Paracineta crenata* (Fraipont, 1878) and *P. homari* (Sand, 1899) which both reproduce by semi-invaginative budding are transferred to *Actinocyathula* Corliss, 1960. Jankowski (1982) erected the genus *Faltacineta* Jankowski, 1982 for the two marine epizoic species *Paracineta pleuromammae* Steuer, 1928 and *Paracineta gaetani* Sewell, 1951. However, the former species *P. pleuromammae* is clearly depicted showing semi-invaginative budding and for this reason the two are transferred to *Actinocyathula* for the first time.

Diagnosis of *Actinocyathula*

Marine suctorians whose ovoid-shaped body is restricted to the anterior half of the lorica. Lorica cup-shaped, never laterally compressed, borne upon a stalk and attached to marine invertebrates such as crustacea, hydroid colonies and calcareous sponges. Tentacles in a single group that is restricted to the apical region of the body. Actinophores absent. Reproduction by semi-invaginative budding.

Key to the species of *Actinocyathula*

1 Stalk equal to or less than lorica length, epizoic on crustacea 3
Stalk greater than lorica length, epizoic on invertebrates other than crustacea 2
2 Lorica smooth . . . . . ***A. cidaris***
Lorica striated transversely . . . . . ***A. crenata***
3 Posterior region of lorica broadly rounded . . . . . ***A. homari***
Posterior of lorica distinctly narrow 4
4 Lorica elongate, stalk usually less than half lorica length . . . . . ***A. pleuromammae***
Lorica width and stalk length approximately equal to lorica length . . . . . ***A. gaetani***

Species descriptions

Actinocyathula cidaris Corliss, 1960

Actinocyathus cidaris Kent, 1882

DESCRIPTION (Fig. 1). This the type species is a small (40 μm long), marine, loricate suctorian. The ovoid body has a flattened base and protrudes from the apical region of the lorica. Tentacles retractile, radiating from the anterior surface of body. Lorica surface smooth, triangular in outline, rounded in cross-section. Apical edge of lorica bends inwards to form a thin cup-like platform in which the zooid is located. Lorica mounted on slender but rigid stalk that is 3–4 times the lorica length. Epizooic on the calcareous sponge *Grantia compressa*. Contractile vacuole may be single or double. Nuclear and reproductive features not described.

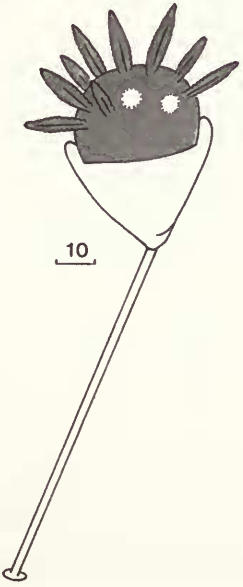

Fig. 1 *Actinocyathula cidaris* after Kent, 1882 (called *Actinocyathus cidaris*).

Actinocyathula crenata n. comb.

Acineta crenata Fraipont, 1878
Acineta saifulae Mereschkowsky, 1877
Paracineta crenata Collin, 1911
Paracineta crenata var. *pachytheca* Collin, 1912
Paracineta crenata forma *pachyteca* Dons, 1922
Corynophrya crenata Batisse, 1975
Miracineta saifulae Jankowski, 1981

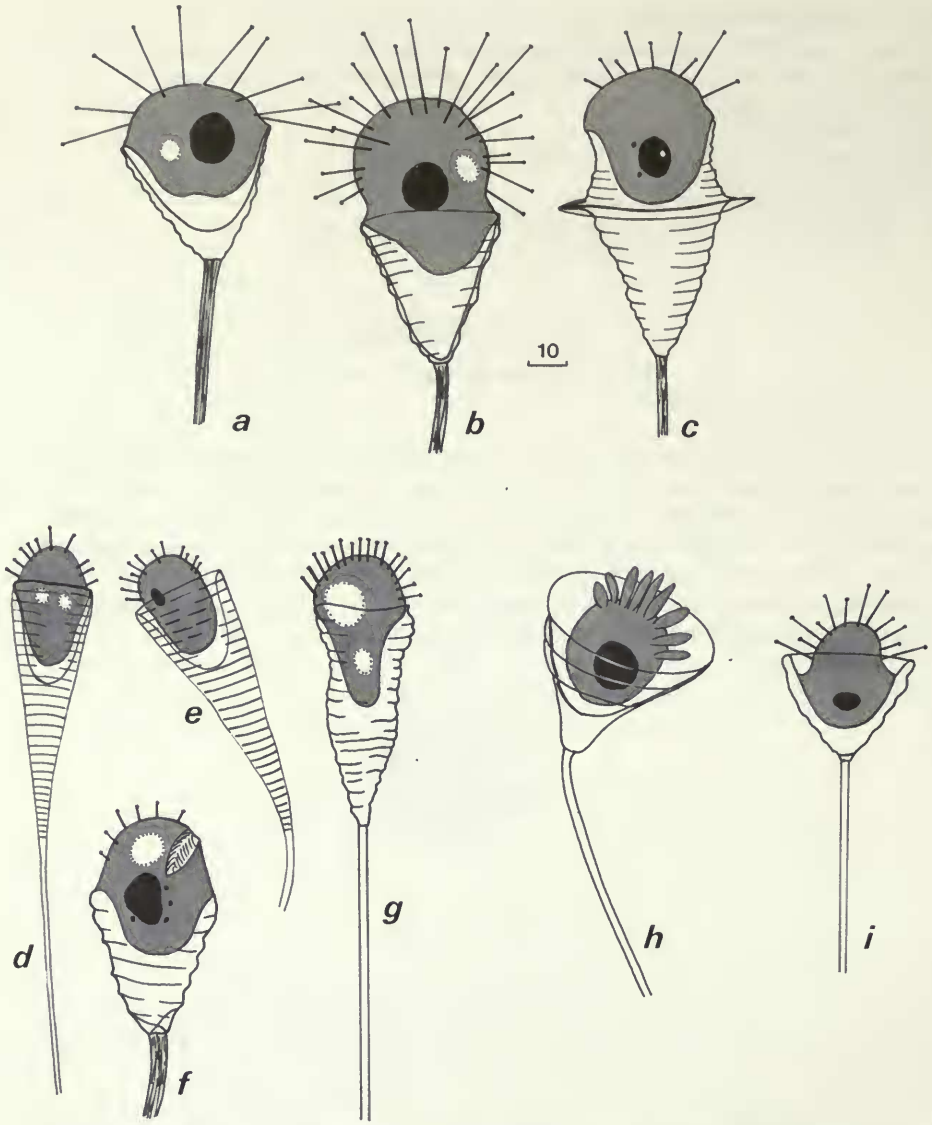

Fig. 2 *Actinocyathula crenata*: (a–c) after Collin, 1912 (called *Paracineta crenata*); (d,e) after Mereschkowsky, 1877 (called *Acineta saifulae*); (f) after Collin, 1912 (called *Paracineta crenata*); (g) after Fraipont, 1878 (called *Acineta crenata*); (h) after Dons, 1922 (called *Paracineta crenata* var. *pachytheca*); (i) after Wailes, 1928 (called *Paracineta crenata* var. *pachytheca*).

DESCRIPTION (Fig. 2). Medium (75 μm long), marine, loricate suctorian. The ovoid body protrudes from the apical region of the lorica. Capitate tentacles sometimes retractile, radiating from the anterior surface of body. Lorica surface crenulated with three to many transverse striations, triangular to elongate in outline, rounded in cross-section. There is a thin cup-like platform in which the zooid is located. Lorica mounted on slender stalk that is 3–4 times the lorica length. Epizooic on a variety of marine invertebrates including the hydroids *Clytia volubilis, Leptoscyphus grigoriewi* and *Perigonimus repens* and the polychaete *Aphrodite aculeata*. Single contractile vacuole located laterally. Spherical macronucleus centrally positioned. Reproduction by semi-invaginative budding. Swarmer not described.

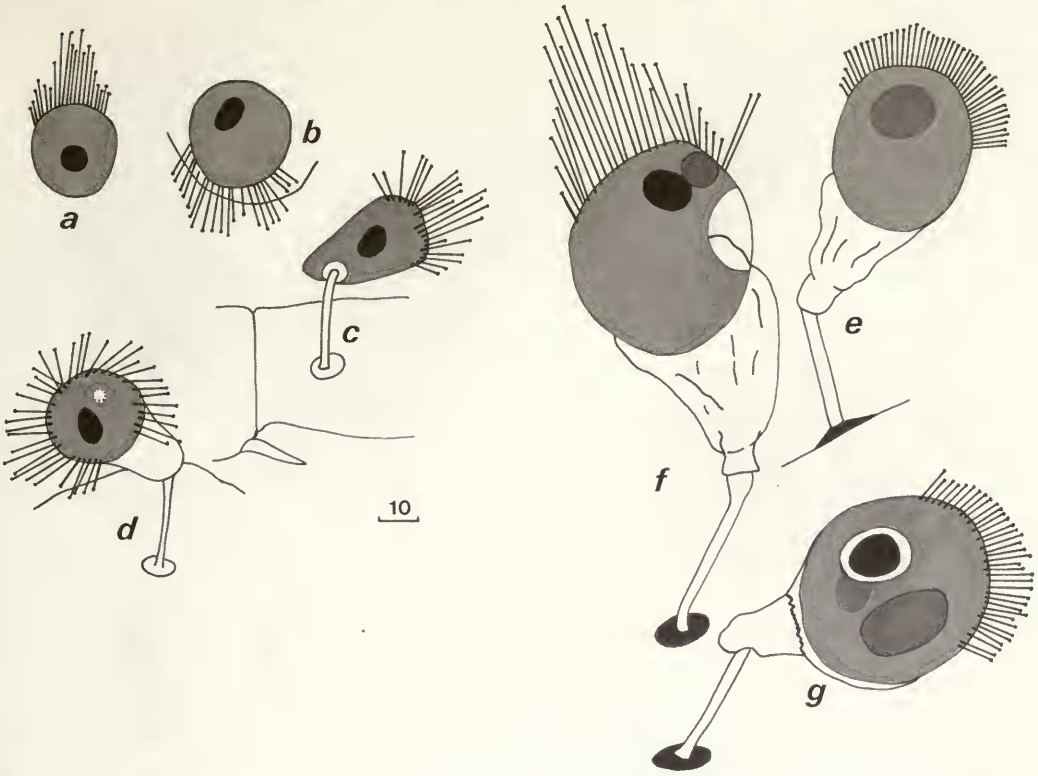

Fig. 3 *Actinocyathula gataeni*: (a–d) various growth stages; (e–g) adults; all after Sewell, 1951 (called *Paracineta gataeni*).

Actinocyathula gataeni (Sewell, 1951) n. comb.

Paracineta gataeni Sewell, 1951
Faltacineta gataeni Jankowski, 1982

DESCRIPTION (Fig. 3). Small (30–55 μm diameter), marine, loricate suctorian. The ovoid body protrudes from the apical region of the lorica. Tentacles radiate out from the anterior body surface. Lorica surface usually smooth but sometimes with transverse wrinkles, triangular in outline, rounded in cross-section. Lorica mounted on a robust rigid stalk that is usually less than the lorica length. Lorica sometimes mounted eccentrically on stalk. Epizooic on the copepods *Gaetanus antarcticus* Wolfendon and *G. curvicornis* Sars. Macronucleus spherical. Reproduction and swarmer not described.

Actinocyathula homari n. comb.

Acineta homari Sand, 1899
Paracineta homari Collin, 1911
Corynophrya homari Batisse, 1975

DESCRIPTION (Fig. 4). Small (25–40 μm long), marine, loricate suctorian. The ovoid body protrudes from the apical region of the lorica. Tentacles retractile, radiating out from the anterior body surface. Lorica surface smooth, triangular to bell-shaped in outline, rounded in cross-section. Lorica mounted on a robust rigid stalk that rarely exceeds the lorica length. Lorica sometimes mounted eccentrically on stalk. Epizooic on a variety of decapod crustacea. Single contractile vacuole located centrally or laterally. Macronucleus spherical, located at posterior of body. Reproduction by semi-invaginative budding. Swarmer not described.

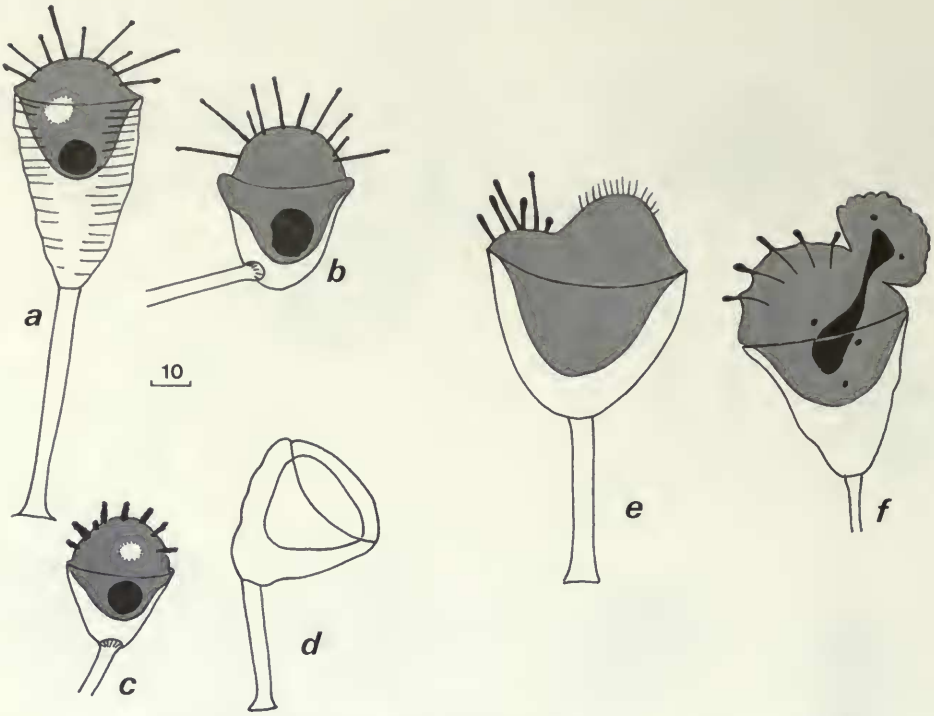

Fig. 4 *Actinocyathula homari*: (a–d) after Collin, 1912 (called *Paracineta homari*); (e,f) after Sand, 1899 (called *Acineta homari*).

Actinocyathula pleuromammae (Steuer, 1928) n. comb.

Paracineta pleuromammae Steuer, 1928
Faltacineta pleuromammae Jankowski, 1982

DESCRIPTION (Fig. 5). Medium (60–115 μm long), marine, loricate suctorian. The ovoid body protrudes from the apical region of the lorica. Tentacles radiate out from the anterior body surface. Lorica surface with irregular transverse striations, elongated cone, rounded in cross-section. Lorica mounted on a robust rigid stalk that is less than half the lorica length. Epizoic on the copepods *Pleuromamma abdominalis* and *P. xiphias*. Single contractile vacuole located laterally. Macronucleus spherical, located centrally. Reproduction by semi-invaginative budding. Swarmer ovoid with many transverse ciliary rows.

Genus ***CORYNOPHRYA*** Kahl, 1934

Pelagacineta Jankowski, 1978 *pro parte*

The genus was orginally erected by Kahl (1934) to include a heterogenous collection of mainly marine species. He stated that the major features distinguishing it from other genera included internal budding, a single apical group of tentacles and a rounded, compact macronucleus. Kahl (1934) included eight species in his genus but three have recently been transferred to the new genus *Pelagacineta* by Jankowski (1978). Kahl (1934) followed the original higher classification system of Collin (1912) and placed the genus in the family Discophryidae where it remained until Batisse (1975) transferred it into the Thecacinetidae which demands reproduction by semi-invaginative budding. The latter step was taken because Batisse (1975) had included *Actinocyathula (Paracineta) crenata* and *A. homari* in the genus. In fact the mode of budding has only been described for one of the five remaining species, where in *Corynophrya lyngbyi* it is endogenous.

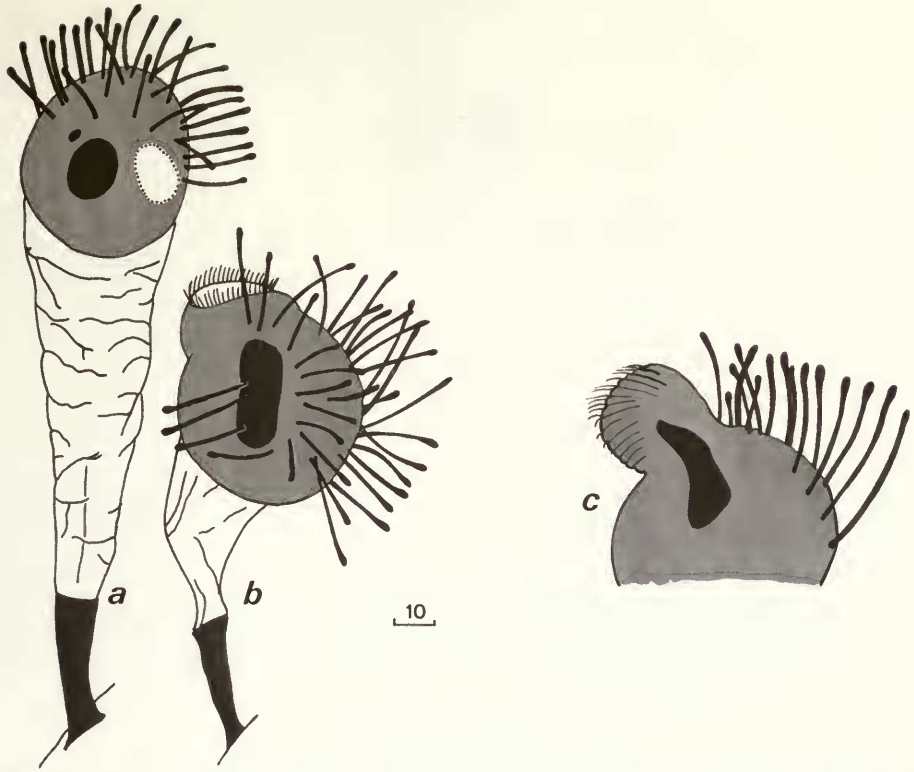

Fig. 5 *Actinocyathula pleuromammae*: (a–c) after Steuer, 1928 (called *Paracineta pleuromammae*).

However, Jankowski (1981) was recently of the opinion that genera in his family Corynophryidae reproduce exogenously although he gave no practical evidence for that conclusion. Of those which Kahl (1934) originally included in the genus only four, *Corynophrya macropus*, *C. conipes*, *C. lyngbyi* and *C. francottei* remain in the present review. The anterior notch in the body of *Corynophrya marina* has been interpreted to indicate invaginative budding and will be transferred to an appropriate genus in a later publication. One other species, *Ephelota columbiae* Wailes, 1943 is included in the genus for the first time since it bears only one type of tentacle whereas there are two types in *Ephelota*. The five species that are included have several features in common, they all have a compact rounded macronucleus, a single apical group of tentacles that are both retractile, prehensile and suctorial and in most there is a conical stalk that clearly narrows towards its base. The species most completely described is *Corynophrya lyngbyi* and this is designated to be the type species in an attempt to establish taxonomic stability.

Diagnosis of *Corynophrya*

Mainly marine, aloricate suctorians whose body shape is spherical to ovoid, rounded in cross section. Borne upon a stalk which is commonly stout near to the zooid narrowing markedly towards its base. Usually epizooic on hydroids, crustacea and polychaetes but also noted on marine algae. Tentacles prehensile and retractile in a single group that is restricted to the apical region on the body. Actinophores absent. Macronucleus usually spherical. Reproduction by endogenous budding.

Key to the species of *Corynophrya*

1 Stalk long, at least 3 times length of body 4
Stalk short, up to twice length of body 2

2	Freshwater, tentacles wide at base, narrowing towards capitate ends	*C. tumida*
	Marine, sides of tentacles parallel, do not narrow towards capitate ends	3
3	Body spherical and regular	*C. columbiae*
	Body ovoid, uneven with folds	*C. symbiotica*
4	Stalk striated transversely	*C. conipes*
	Stalk striated longitudinally or without striations	5
5	Macronucleus spherical	6
	Macronucleus in shape of horseshoe	*C. lyngbyi*
6	Stalk markedly wider near zooid, narrowing towards base	*C. macropus*
	Sides of stalk parallel, stalk does not narrow towards base	*C. francottei*

Species descriptions

Corynophrya lyngbyi (Ehrenberg, 1833) Kahl, 1934

Acineta lyngbyi Ehrenberg, 1833
Podophrya lyngbyei Claparède & Lachmann, 1859 *non* Robin, 1879
Tokophrya lyngbyei Bütschli, 1889
Discophrya lyngbyei Collin, 1912

DESCRIPTION (Fig. 6). This the type species is a small to medium (40–80 μm), marine, aloricate suctorian. The ovoid body is oval in section and slightly wider anteriorly. The retractile, capitate tentacles located on the anterior body surface. Stalk long (120–400 μm), at least four times

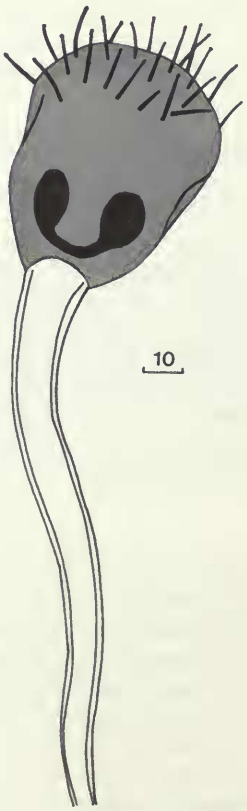

Fig. 6 *Corynophrya lyngbyi* after Fraipont, 1878 (called *Podophrya lyngbyi*).

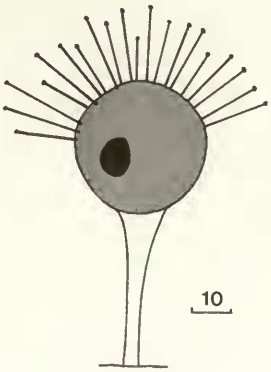

Fig. 7 *Corynophrya columbiae* after Wailes, 1943 (called *Ephelota columbiae*).

the body length. Stalk wider near zooid than at its base. Attached to hydroid colonies such as *Sertularia* and *Clytia* as well as marine algae. There are one or two contractile vacuoles. Macronucleus spherical in the young adult but this elongates into a horse-shoe shape at maturity. Reproduction by endogenous budding which may be multiple. Swarmer not described.

NOTE. The specific epithet has been consistently mispelt by several authors over many years. Ehrenberg's (1833) original spelling was *lyngbyi* but later (1838) in his atlas the name appears as *lyngbyei* and it was this spelling that was used by several later authorities.

Corynophrya columbiae n. comb.

Ephelota columbiae Wailes, 1943

DESCRIPTION (Fig. 7). This is a small (30–60 μm), marine, aloricate suctorian. The spherical to ovoid body is round in section. The retractile, capitate tentacles located on the anterior half of body surface. Stalk usually short (50–200 μm), and usually less than three times the body length. Stalk wide near zooid narrowing towards the base. Attached to crustacea in large numbers. Macronucleus spherical, centrally located. Reproduction not described.

Corynophrya conipes (Mereschkowsky, 1877) Kahl, 1934

Acineta conipes Mereschkowsky, 1877
Podophrya conipes Mereschkowsky, 1879
Tokophrya conipes Bütschli, 1889

DESCRIPTION (Fig. 8). This is a large (100–190 μm), marine, aloricate suctorian. The ovoid to pyriform body is oval in section and widens anteriorly. The retractile, capitate tentacles located mainly on the anterior body surface. Stalk long (800–1500 μm), usually 8–10 times the body length. Stalk distinctly wider near zooid than at its base, finely striated transversely and usually with two distinct annuli situated about a third of the way down the stalk. Attached to marine algae such as *Ptilota* and *Ceramium*. Single anterior contractile vacuole. Macronucleus spherical, located centrally or subcentrally. Reproduction and swarmer not described.

Corynophrya francottei (Sand, 1895) Kahl, 1934

Tokophrya francottei Sand, 1895
Discophrya francottei Collin, 1912

DESCRIPTION (Fig. 9). This is a small (50–60 μm), marine, aloricate suctorian. The retractile, capitate tentacles are located on the anterior surface of the spheroidal body. Stalk long (100–230 μm), at least three times the body length, retaining a constant diameter along its entire length. Attached to hydroid colonies such as *Sertularia* and *Ceramium*. There is a single

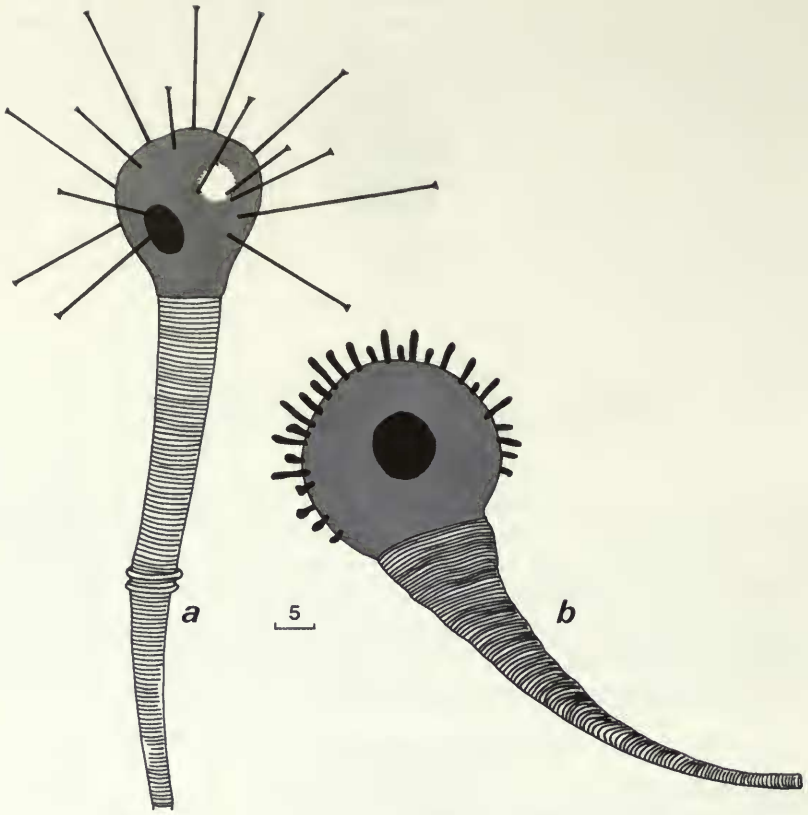

Fig. 8 *Corynophrya conipes*: (a) after Mereschkowsky, 1879 (called *Podophrya conipes*); (b) after Meunier, 1910 (called *Podophrya conipes*).

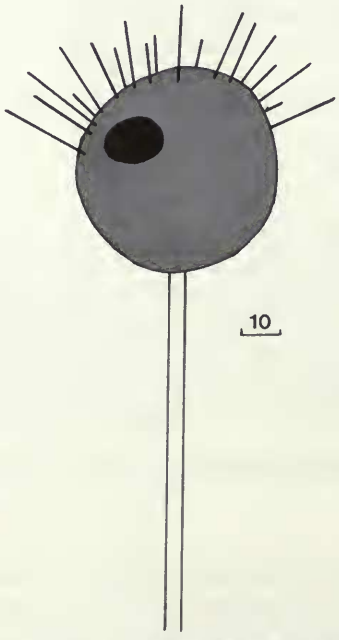

Fig. 9 *Corynophrya francottei* after Sand, 1895 (called *Tokophrya francottei*).

Fig. 10 *Corynophrya macropus* after Meunier, 1910 (called *Podophyra macropus*).

marginal contractile vacuole. Macronucleus oval to spherical, located centrally or subcentrally. Reproduction and swarmers not described.

Corynophrya macropus (Meunier, 1910) Kahl, 1934

Podophrya macropus Meunier, 1910

DESCRIPTION (Fig. 10). This is an incompletely defined species whose size has not been recorded, marine, aloricate. The body is spherical in shape and carries retractile, capitate tentacles on its anterior surface. Stalk long, at least three times the body length. Stalk, which is wider near the zooid than at its base, is distinctly striated, longitudinally along its entire length. Macronucleus spherical, located centrally. Reproduction and swarmer not described.

Corynophrya symbiotica Jankowski, 1981

DESCRIPTION (Fig. 11). This is a medium (80–105 μm), marine, aloricate suctorian. The ovoid body has rather bumpy irregular appearance with some longitudinal folds. The retractile tentacles occupy the entire domed anterior body surface. Stalk comparatively short (up to 90 μm), about same as the body length. Stalk slightly wider near zooid than at its base. Attached to arctic polychaete worms belonging to the family Aphroditidae. There is a single anterior contractile vacuole. Macronucleus spherical, located centrally. Reproduction and swarmer not described.

Corynophrya tumida (Gajewskaja, 1933) Matthes, 1954

Discophrya tumida Gajewskaja, 1933

DESCRIPTION (Fig. 12). This is a small (50 μm), freshwater, aloricate suctorian. The ovoid body is round in section and slightly wider posteriorly. The retractile, capitate tentacles are rather wider at the base and occupy the anterior half of the body surface. Stalk short (60–70 μm), only just longer than the body. Stalk wider near zooid than at its base and distinctly striated transversely at infrequent intervals along its length. The stalk is also irregularly striated longitudinally.

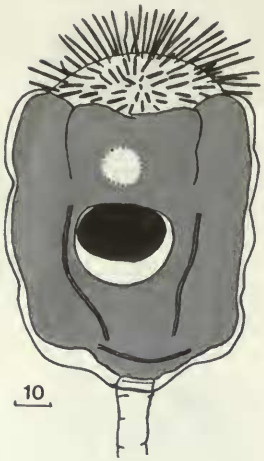

Fig. 11 *Corynophrya symbiotica* after Jankowski, 1981.

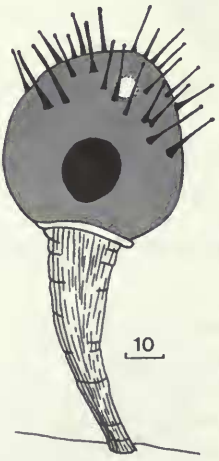

Fig. 12 *Corynophrya tumida* after Gajewskaja, 1933 (called *Discophrya tumida*).

Attached to gammarid crustacea in Lake Baikal. There is a single anterior contractile vacuole. Macronucleus spherical, located centrally. Reproduction and swarmer not described.

Genus ***PELAGACINETA*** Jankowski, 1978

Schröder (1907) first described the two marine species *Tokophrya interrupta* and *T. campanula* which resembled *Ephelota* in some respects and *Podocyathus* in others. They resembled *Ephelota* in their multiple endogenous method of budding but *Ephelota* is without a thecostyle and has two different types of tentacles. Similarly they resembled *Podocyathus* in their overall structure but reproduced differently from that genus. Schröder (1911) later added a further species *T. steueri* to the group but still placed it in *Tokophrya* a genus typified by the absence of a lorica. Collin (1912) was the first to transfer the three species out of *Tokophrya* and he grouped them with several other misfits into his third section of the genus *Discophrya*. Kahl (1934) later erected the new genus *Corynophrya* for Collin's third section where they remained until the genus *Pelagacineta* was

defined by Jankowski (1978) for those species 'like *Podocyathus* but with multiple endogenous budding'. Jankowski (1978) designated *P. interrupta* (Schröder, 1907) to be the type species and included *P. campanula* (Schröder, 1907) in the new genus. In the current revision the diagnosis is elaborated for the sake of clarity and some other species are transferred to the genus for the first time.

Diagnosis of *Pelagacineta*

Marine suctoria with lorica-like thecostyle. Body shape ovoid, discoidal or pyriform, rounded in cross section, actinophores absent. Stalk widens anteriorly to form lorica-like thecostyle. Single type of retractile tentacle present, arranged in one or two anterior groups. Attached to copepods or marine algae. Macronucleus typically elongate and often branched. Reproduction by multiple endogenous budding. Swarmers ovoid partially ciliated with several longitudinal kineties.

Key to the species of *Pelagacineta*

1	Tentacles in single anterior group	***P. campanula***
	Tentacles in two anterior groups	2
2	Only 2 tentacles present, attached to algae	***P. dibdalteria***
	Many tentacles present, attached to copepods	3
3	Macronucleus elongate but not branched, body ovoid but not discoidal	***P. euchaetae***
	Macronucleus elongate and branched, body sometimes discoidal	***P. interrupta***

Species descriptions

Pelagacineta interrupta (Schröder, 1907) Jankowski, 1978

Tokophrya interrupta Schröder, 1907
Discophrya interrupta Collin, 1912
Corynophrya interrupta Kahl, 1934

DESCRIPTION (Fig. 13). This the type species is a medium (100–140 μm long), marine suctorian with thecostyle. The ovoid body may be dorso-ventrally compressed and discoidal in shape lying at the top of a thecostyle that widens considerably to form a lorica-like anterior region. Stalk region hollow, 2–3 times the length of the lorica part of the thecostyle, terminating in a longitudinally striated basal disc. Many retractile, capitate tentacles located anteriorly arranged in two fascicles. Attached to marine copepods such as *Euchaeta* and *Metridia* reported from antarctic waters. Shape of macronucleus variable, always elongate and frequently branched. Reproduction by multiple endogenous budding producing oval swarmers partially ciliated with many kinetics on part of the ventral body surface.

Pelagacineta campanula (Schröder, 1907) Jankowski, 1978

Tokophrya campanula Schröder, 1907
Tokophrya steueri Schröder, 1911
Discophrya campanula Collin, 1912
Discophrya steueri Collin, 1912
Corynophrya campanula Kahl, 1934
Corynophrya steueri Kahl, 1934

DESCRIPTION (Fig. 14). This is a medium (100–150 μm long), marine suctorian with thecostyle. The ovoid body may be dorso-ventrally compressed and discoidal in shape lying at the top of a thecostyle that widens considerably to form a cupped lorica-like anterior region. Stalk region hollow, 1–3 times the length of the lorica part of the thecostyle, terminating in a longitudinally striated basal disc. Many retractile, capitate tentacles located anteriorly arranged in a single fascicle sometimes surrounded by an outer ring of short tentacles. Attached to marine copepods such as *Euchaeta* and *Metridia* reported from antarctic waters. Shape of macronucleus variable but

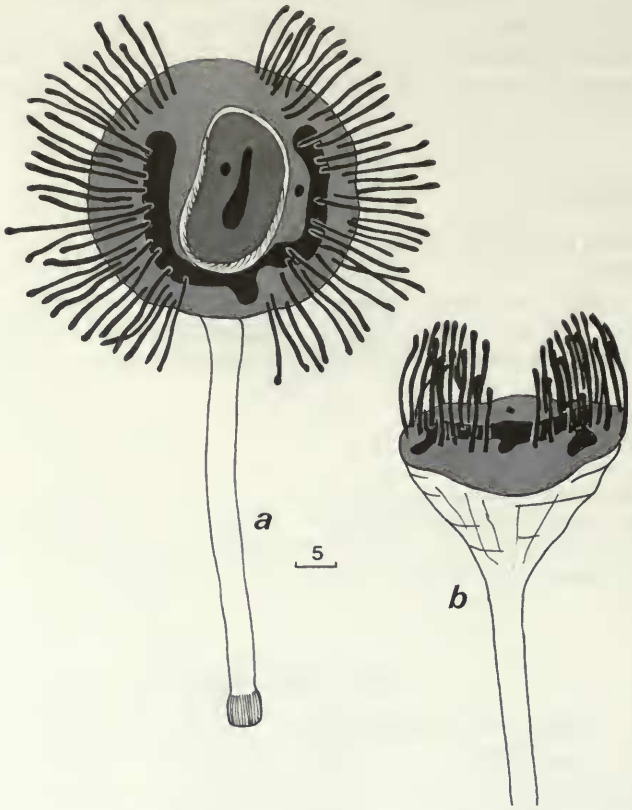

Fig. 13 *Pelagacineta interrupta*: (a,b) after Schröder, 1907 (called *Tokophrya interrupta*).

always elongate and highly branched. Reproduction by multiple endogenous budding producing oval swarmers partially ciliated with many kineties on part of the ventral body surface.

Pelagacineta dibdalteria (Parona, 1881), n. comb.

Acineta dibdalteria Parona, 1881

DESCRIPTION (Fig. 15). This is a small (50–60 μm long), marine suctorian with thecostyle. The body is pyriform in outline, rounded in cross section and lies at the top of a thecostyle that widens considerably to form a cupped lorica-like anterior region. Stalk region hollow, equal to or slightly less than the length of the lorica part of the thecostyle. There are only two capitate, prehensile mobile tentacles, one located anteriorly on either side of the body. Attached to marine algae. Contractile vacuole positioned centrally. Macronucleus elongate sausage-shaped. Reproduction and swarmers not described.

Pelagacineta euchaetae (Sewell, 1951) n. comb.

Acineta euchaetae Sewell, 1951

DESCRIPTION (Fig. 16). This is a medium (80–90 μm diameter), marine suctorian with thecostyle. The ovoid body lies at the top of a thecostyle that widens considerably to form a lorica-like anterior region. Young forms without lorica portion of the thecostyle. Stalk region hollow, usually shorter than length of the lorica part of the thecostyle, terminating in a longitudinally striated basal disc. Many retractile, capitate tentacles located anteriorly arranged in two fascicles. Attached to the

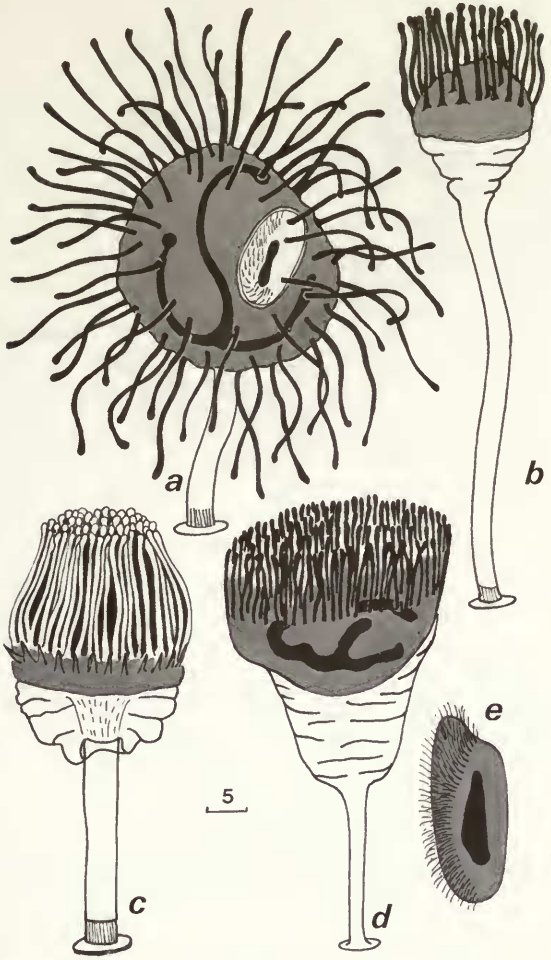

Fig. 14 *Pelagacineta campanula*: (a–c) after Schröder, 1907 (called *Tokophrya campanula*); (d,e) adult and swarmer, after Schröder, 1911 (called *Tokophrya steueri*).

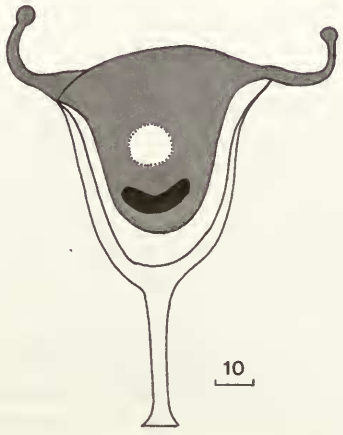

Fig. 15 *Pelagacineta dibdalteria* after Parona, 1881 (called *Acineta dibdalteria*).

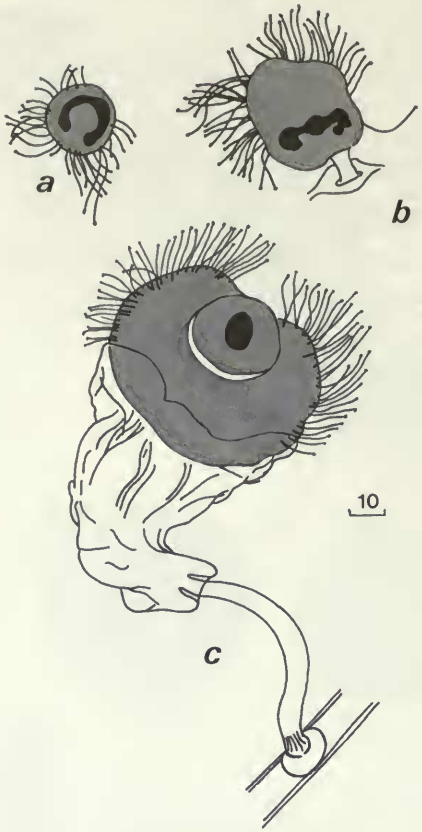

Fig. 16 *Pelagacineta euchaetae*: various growth stages, after Sewell, 1951 (called *Acineta euchaetae*).

marine copepod *Euchaeta* reported from antarctic waters. Shape of macronucleus variable, always elongate and curved. Reproduction by endogenous budding producing oval swarmers.

Genus ***PARACINETA*** Collin, 1911

Luxophrya Jankowski, 1978
Proluxophrya Jankowski, 1978
Stemacineta Jankowski, 1978

The genus *Paracineta* Collin, 1911 was erected in order to provide for those loricate suctoria with an apical group of tentacles that reproduced by external budding and were longitudinally symmetrical. The inclusion of *Paracineta crenata,* and *P. homari* which reproduce by semi-invaginative budding has already been dealt with above, but even after their removal, the species included by Collin (1912) in the genus *Paracineta* form a heterogenous group. Several other transfers have been suggested and are dealt with in other parts of this paper. After the removal of these from the genus the following four species remain from Collin's (1912) list, *Paracineta jorisi* (Sand, 1895), *P. limbata* (Maupas, 1881), *P. patula* (Claparède & Lachmann, 1861) and *P. vorticelloides* (Fraipont, 1878). Since that time, one other valid species has been added. One of the remaining major problems is the lack of a type species that will give some stability to the genus and enable a modern diagnosis to be proposed. This omission is rectified here by designating *Paracineta patula* (Claparède & Lachmann, 1861) Collin, 1911 as type species for the genus. This species is well described and includes good illustrated accounts of the budding and general

morphology. Furthermore it is the only surviving species of the three originally placed in the genus by Collin (1911).

Diagnosis of *Paracineta*

Marine suctorians whose body shape is spherical to ovoid, rounded in transverse section. Long thecostyle with a semi-lorica that is variable in size. Semi-lorica may be sufficient to enclose half the zooid's volume or be reduced sufficiently for the body to be perched on top of a small cone-like widening at the top of the stem. Capitate tentacles usually restricted to apical body face but may radiate out from other areas when the semi-lorica is very small. Reproduction by exogenous budding, swarmers covered in many transverse ciliary rows.

Key to the species of *Paracineta*

1	Zooid perched on top of very small semi-lorica	2
	Approximately half of zooid enclosed within semi-lorica	4
2	Tentacles emerge from all over zooid	3
	Tentacles restricted to apical surface	***P. jorisi***
3	Zooid with thick gelatinous outer covering	***P. limbata***
	Zooid without gelatinous outer covering	***P. vorticelloides***
4	Stem of thecostyle with narrow flexible portion near junction with zooid	***P. patula***
	Stem of thecostyle not narrowed, not flexible	5
5	Thecostyle striated transversely regularly along entire length	***P. moebiusi***
	Thecostyle smooth, unstriated	6
6	Semi-lorica with border-like rim	***P. jorisi***
	Semi-lorica without border-like rim	7
7	Small, (semi-lorica 15–25 μm long), epizoic on polychaetes	***P. irregularis***
	Medium, (semi-lorica 30–80 μm long), epizoic on hydroids and marine algae	***P. patula***

Species descriptions

Paracineta patula (Claparède & Lachmann, 1861) Collin, 1911

Acineta patula Claparède & Lachmann, 1861
Acineta divisa Fraipont, 1878
Paracineta divisa Kahl, 1934
Stemacineta patula Jankowski, 1978

DESCRIPTION (Fig. 17). This the type species is a small (50–60 μm long), marine suctorian with a thecostyle. The ovoid to elongate body protrudes to a greater or lesser extent beyond the apical rim of thecostyle although the latter is sufficiently large to enclose at least half of the zooid. Capitate tentacles not in fascicles, usually covering the apical surface of the exposed part of the zooid. Apical part of thecostyle is triangular, tapering posteriorly to form a hollow tube-like stem that is at least three times the length of the lorica-like part. The junction between the two parts of the thecostyle often, secondarily, narrowed and flexible. Attached to hydroid colonies and marine algae. Single contractile vacuole usually positioned laterally. Spherical macronucleus located centrally. Reproduction by exogenous budding resulting in an ovoid swarmer covered in transverse ciliary rows with some anterior short residual tentacles.

NOTE. The observation by Collin (1912) that the formation of a narrow flexible junction between stem and lorica is a secondary event allows the inclusion of *Acineta divisa* Fraipont, 1878 as a junior synonym.

Paracineta irregularis Dons, 1928

DESCRIPTION (Fig. 18). This is a small (15–25 μm long), marine suctorian with a thecostyle. The ovoid to irregularly shaped body protrudes to a greater or lesser extent beyond the apical rim of thecostyle although the latter half of the zooid is always enclosed. Tentacles cover the apical

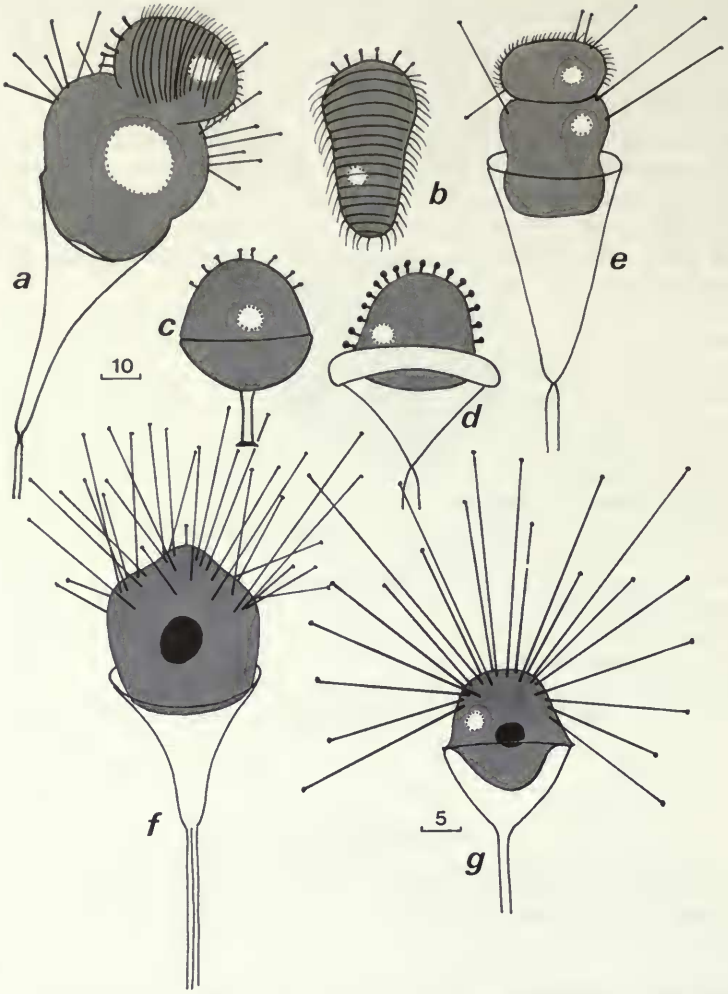

Fig. 17 *Paracineta patula*: (a–c) after Collin, 1912; (d–e) after Claparede & Lachmann, 1861 (called *Acineta patula*); (f) after Fraipont, 1877 (called *Acineta divisa*); (g) after Calkins, 1902 (called *Acineta divisa*).

surface of the exposed part of the zooid. Apical part of thecostyle irregularly triangular, tapering posteriorly to form a rigid hollow tube-like stem that is at least half the length of the lorica-like part. Epizoic on chaetae of the polychaete worm *Pherusa plumosa*. Spherical macronucleus located centrally. Reproduction not described.

Paracineta jorisi (Sand, 1895) Collin, 1912

Acineta jorisi Sand, 1895

DESCRIPTION (Fig. 19). This is a small to medium (30–80 μm long), marine suctorian with a thecostyle. The ovoid to pyriform body protrudes to a great extent beyond the apical rim of the semi-lorica part of the thecostyle which is not normally large enough to enclose the zooid. Tentacles not in fascicles, usually covering the apical surface of the exposed part of the body. Apical part of thecostyle is triangular or cup-like. The rim is prominently flared and folds back on itself to form an internal layer upon which the zooid is mounted. Thecostyle tapers posteriorly to

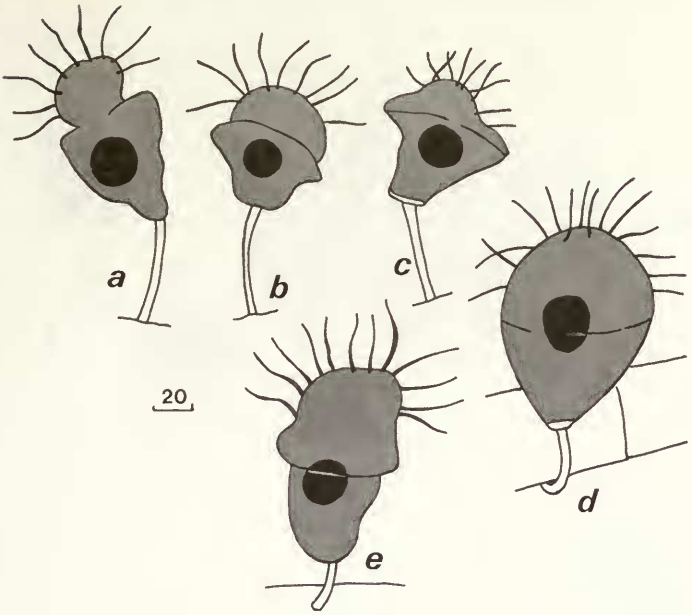

Fig. 18 *Paracineta irregularis*: (a–e) various forms after Dons, 1928.

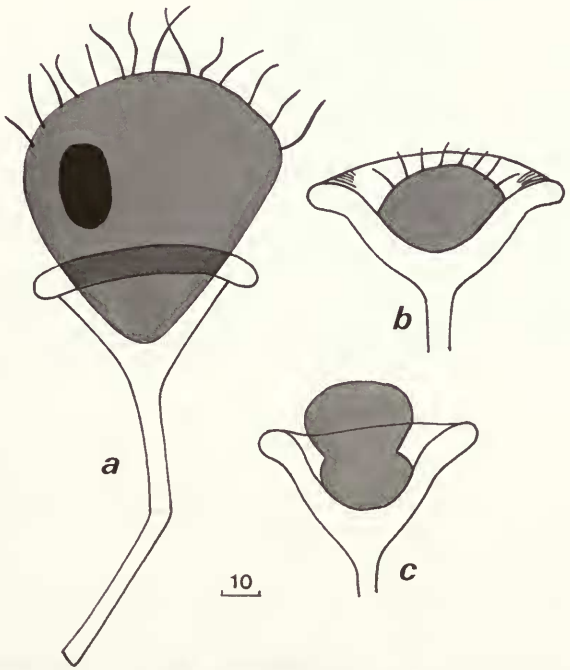

Fig. 19 *Paracineta jorisi* after Sand, 1895 (called *Acineta jorisi*).

form a rigid hollow tube-like stem that is at least three times the length of the lorica-like part. Attached to hydroid colonies such as *Vesicularia* and *Sertularia*. Single contractile vacuole. Spherical macronucleus located centrally. Reproduction by exogenous budding.

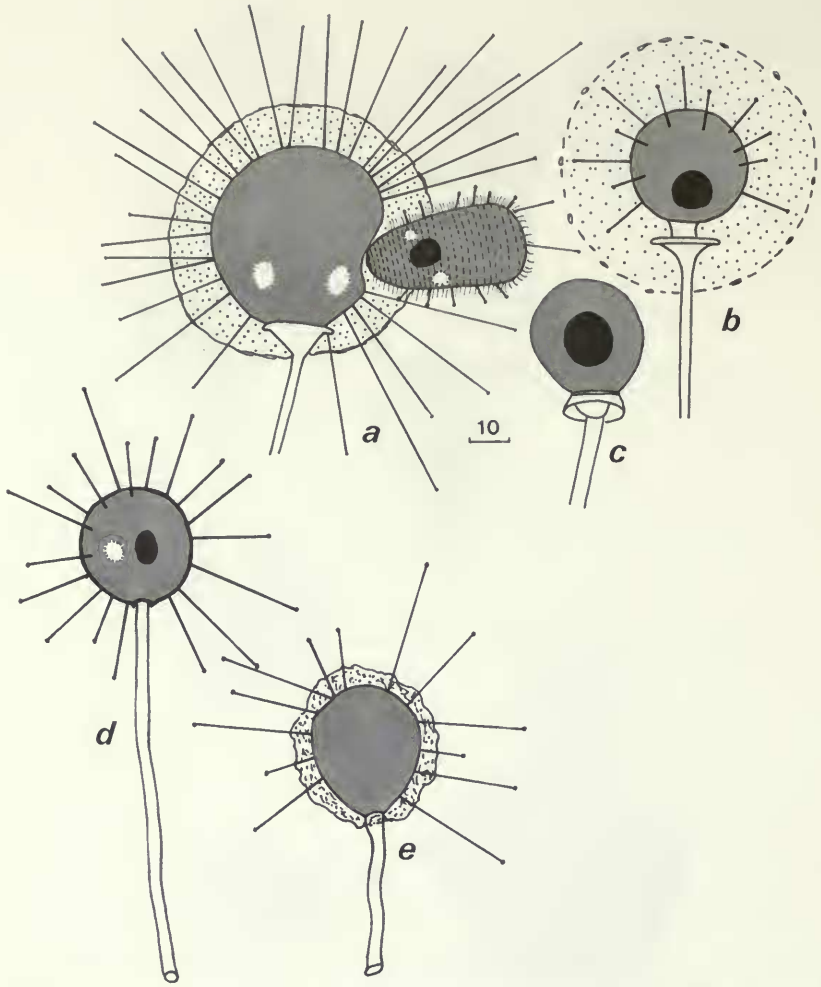

Fig. 20 *Paracineta limbata*: (a) adult with swarmer, after Collin, 1912; (b) after Wailes, 1928; (c) after Dons, 1922; (d,e) after Moebius, 1888 (called *Podophrya limbata*).

Paracineta limbata (Maupas, 1881) Collin, 1912

Podophrya limbata Maupas, 1881
Tokophrya limbata Bütschli, 1889
Paracineta limbata forma *convexa* Dons, 1922
Luxophrya limbata Jankowski, 1978

DESCRIPTION (Fig. 20). This is a small (20–45 μm diameter), marine suctorian with a thecostyle. The spherical body is mounted on the rim of a greatly reduced lorica-like part of the thecostyle. Zooid often covered by a thick gelatinous outer coat. Capitate tentacles not in fascicles, radiate out from the entire surface of the exposed zooid. Reduced apical part of thecostyle is cone-like, tapering posteriorly to join a rigid hollow tube-like stem that is at least four times the diameter of the zooid in length. Attached to hydroid colonies. Two contractile vacuoles usually positioned laterally. Spherical macronucleus located centrally. Reproduction by exogenous budding resulting in an ovoid swarmer covered in transverse ciliary rows with some residual tentacles.

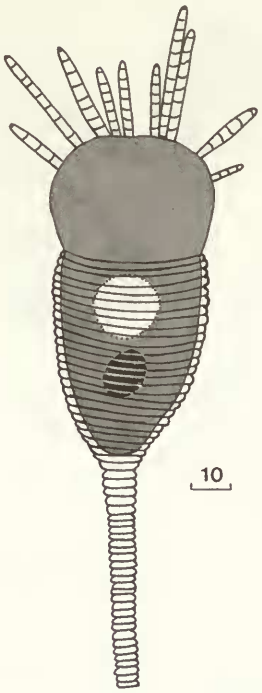

Fig. 21 *Paracineta moebiusi* after Moebius, 1888 (called *Acineta crenata*).

Paracineta moebiusi (Moebius, 1888) Kahl, 1934

Acineta crenata Moebius, 1888

DESCRIPTION (Fig. 21). This is a medium (76 μm long), marine suctorian with a thecostyle. Approximately half the elongate body protrudes beyond the apical rim of thecostyle. Tentacles not in fascicles, covering only the apical surface of the exposed part of the zooid. The thecostyle is prominently and totally ribbed transversely. The apical part is cup-shaped, and tapers posteriorly to form a rigid hollow tube-like stem that is about one and a half times the length of the lorica-like part. Epizoic on the crustacean *Holocarus*. Single anterior contractile vacuole. Spherical macronucleus located posteriorly. Reproduction not described.

Paracineta vorticelloides (Fraipont, 1877) Collin, 1912

Acineta vorticelloides Fraipont, 1877
Proluxophrya vorticelloides Jankowski, 1978

DESCRIPTION (Fig. 22). This is a small (30–40 μm diameter), marine suctorian with a thecostyle. The spherical body is mounted on the greatly reduced anterior part of the thecostyle. Capitate tentacles not in fascicles, radiating out from the entire surface of the exposed zooid. Reduced apical part of thecostyle is cup-like, tapering posteriorly to join a rigid hollow tube-like stem that is at least four times the diameter of the body in length. Epizoic on hydroid colonies, crustacea and marine algae. Single central contractile vacuole. Spherical macronucleus located posteriorly. Reproduction by exogenous budding.

Genus ***LORICOPHRYA*** Matthes, 1956

Acineta Ehrenberg, 1833 *pro parte*
Thecacineta Collin, 1909 *pro parte*
Paracineta Collin, 1911 *pro parte*

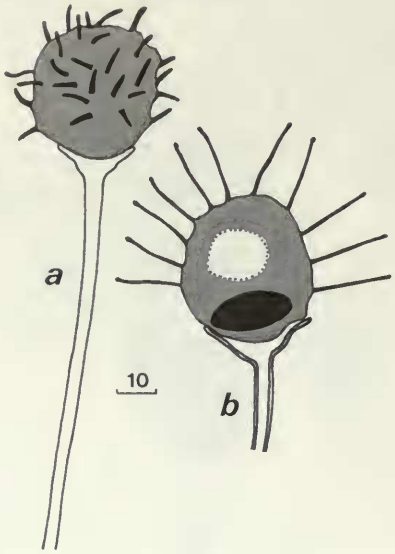

Fig. 22 *Paracineta vorticelloides*: (a,b) after Fraipont, 1878 (called *Acineta vorticelloides*).

Corynacineta Jankowski, 1978
Heliotheca Jankowski, 1978
Paraloricophrya Jankowski, 1978
Spongiophrya Jankowski, 1978

The genus was originally erected by Matthes (1956) for loricate suctoria with a single apical group of tentacles but with an unknown method of budding. He designated *Loricophrya parva* (Schulz, 1932) as the type species and listed the following species to constitute the genus: *Loricophrya cattanei* (Parona, 1883), *L. simplex* (Maskell, 1886), *L. lasanicola* (Maskell, 1887), *L. tulipa* (Maskell, 1887), *L. solenophryaformis* (Sand, 1899), *L. cypridinae* (Collin, 1912), *L. caepula* (Penard, 1920), *L. edmondsoni* (King, 1932), *L. sivertseni* (Allgén, 1951), *L. trichophora* (Allgén, 1951) and *L. longe-petiolatus* (Allgén, 1951). The present author does not consider all of these species to be congeneric although the majority are retained in this revision. The three species described by Maskell (1886, 1887) have already been transferred back (Curds, 1985) into the genus *Acineta* but the generic position of *L. cattanei* (Parona, 1883) is still uncertain. Similarly, *L. cypridinae* (Collin, 1912) will be returned back to its original genus *Thecacineta*. All the others in Matthes (1956) original list have been retained within the genus although the specific epithet may be different to that used by him and several additions have been made.

Diagnosis of *Loricophrya*

Freshwater or marine sectoria with a thecostyle. When clearly differentiated the stem is shorter than the lorica part of the thecostyle. Body ovoid to elongate, rounded in cross-section. Capitate tentacles restricted to a single group on the apical surface of the zooid. Mode of reproduction not yet recorded.

Key to the species of *Loricophrya*

1 Thecostyle continually narrows posteriorly without a stalk region being clearly differentiated . 2
A narrow stalk region is clearly differentiated from the rest of the thecostyle 4
2 Most of zooid projects out of short thecostyle . . . . . ***L. oviformis***
Most of zooid enclosed within long thecostyle 3
3 Zooid small, pyriform, lying in apical quarter of thecostyle . . . . . ***L. tuba***
Zooid large, elongate, filling most of thecostyle cavity. . . . . ***L. sivertseni***

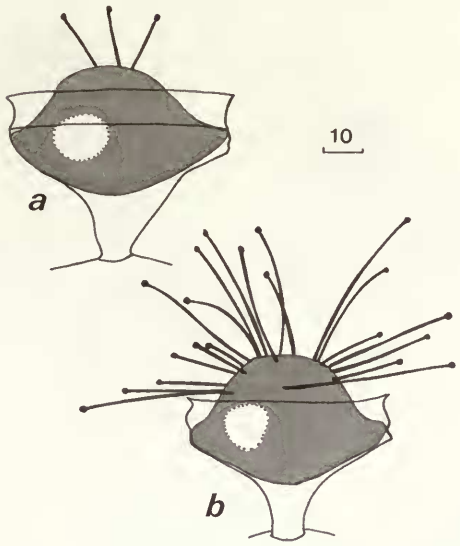

Fig. 23 *Loricophrya parva*: (a,b) after Schulz, 1932 (called *Thecacineta parva*).

4 Zooid longer than wide, never dorso-ventrally flattened nor discoidal 5
Zooid wider than length, flattened dorso-ventrally or discoidal in shape 9
5 Lorica part of thecostyle striated transversely . . . . . ***L. lauterborni***
Lorica part of thecostyle without striations or ribs 6
6 Thecostyle wider than height, covered in tubercles . . . . . ***L. bifaria***
Thecostyle longer than wide, smooth 7
7 Stalk part of thecostyle is half length of lorica part, and may be striated 8
Stalk part of thecostyle very short, about 1/8 of lorica part, not striated . . ***L. multitentaculata***
8 Stalk part of thecostyle striated, lorica part triangular in outline . . . . . ***L. stresemanni***
Stalk part of thecostyle not striated, lorica part oval in outline . . . . . ***L. trichophora***
9 Stalk region very short, about 1/8 length of lorica region. Rim without collar, small aperture ***L. caepula***
Stalk region short, about 1/2 length of lorica region. Rim of thecostyle with collar region surrounding wide aperture 10
10 Stalk part of thecostyle conical in shape . . . . . ***L. parva***
Stalk part of thecostyle tubular . . . . . ***L. solenophryaformis***

Species descriptions

Loricophrya parva (Schulz, 1932) Matthes, 1956

Thecacineta parva Schulz, 1932

DESCRIPTION (Fig. 23). This the type species is a small (36–41 μm long), brackish-water suctorian with a thecostyle. The discoidal body is rounded in cross-section and lies within an urn-like thecostyle. There is a single apical group of capitate tentacles on the apical surface. The thecostyle narrows somewhat posteriorly to form a cone-like stalk region. Attached to inanimate objects. Single lateral contractile vacuole. Macronucleus oval, centrally located. Reproduction not described.

Loricophrya bifaria (Stokes, 1887) n. comb.

Acineta bifaria Stokes, 1887
Paracineta bifaria Collin, 1912
Paraloricophrya bifaria Jankowski, 1978

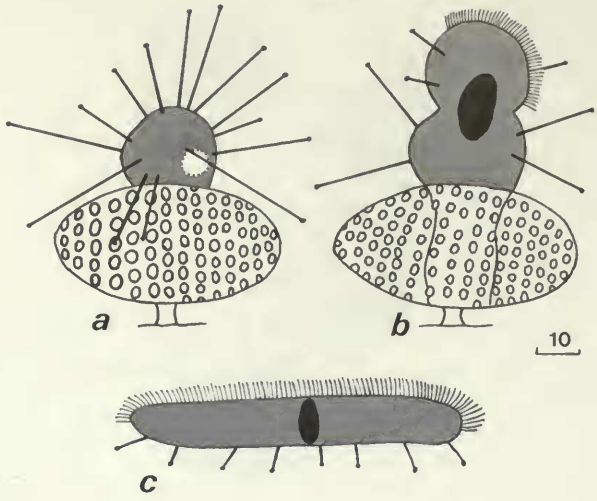

Fig. 24 *Loricophrya bifaria*: (a) adult; (b) budding; (c) swarmer; all after Stokes, 1887 (called *Acineta bifaria*).

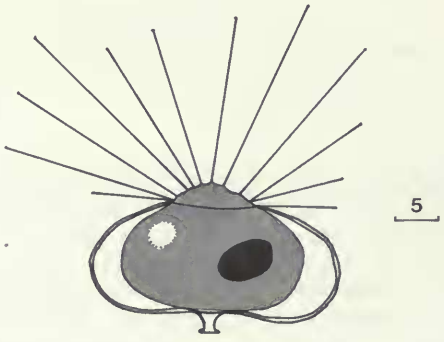

Fig. 25 *Loricophrya caepula* after Penard, 1920 (called *Thecacineta caepula*).

DESCRIPTION (Fig. 24). This is a small (45 μm diameter), freshwater suctorian with a thecostyle. The elongate body is rounded in cross-section and projects out well beyond the rim of the thecostyle. There is a single group of apical capitate tentacles. Stalk region a short, button-like projection. Lorica region ovoid, covered in tubercles, width greater than height. Single lateral contractile vacuole. Ovoid macronucleus centrally located. Reproduction by exogenous budding resulting in an elongate swarmer with longitudinal rows of cilia and some residual tentacles.

Loricophrya caepula (Penard, 1920) Matthes, 1956

Thecacineta caepula Penard, 1920
Heliotheca caepula Jankowski, 1978

DESCRIPTION (Fig. 25). This is a small (33 μm diameter), freshwater suctorian with a thecostyle. The ovoid body is rounded in cross-section and just projects out beyond the rim of the thecostyle. There is a single group of apical capitate tentacles. Stalk region a short, button-like projection. Lorica region ovoid, width greater than height. Single anterio–lateral contractile vacuole. Ovoid macronucleus centrally located. Reproduction not described.

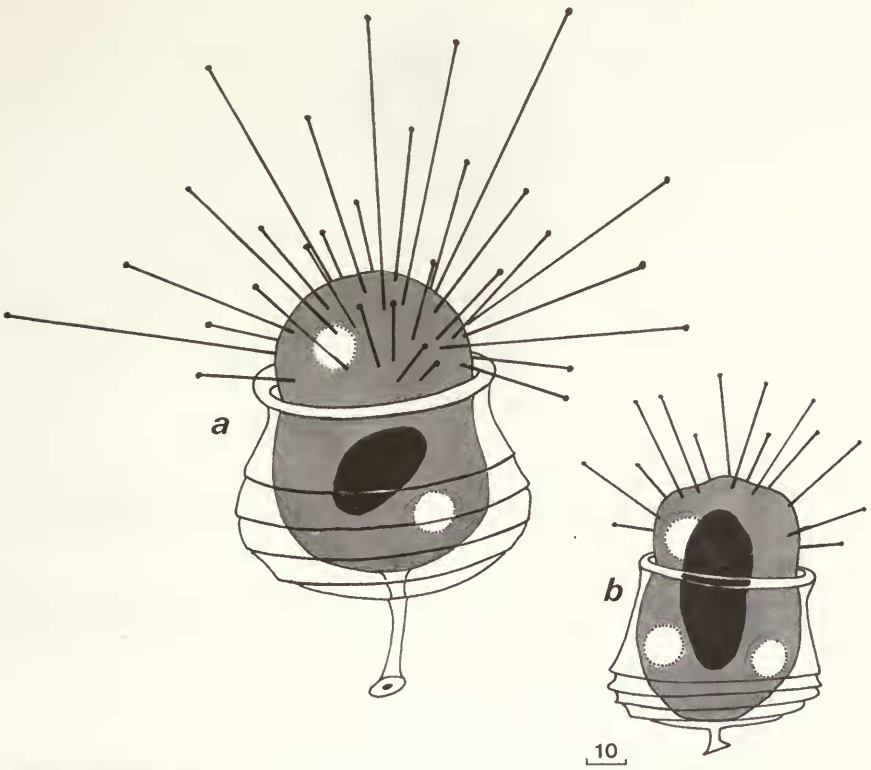

Fig. 26 *Loricophrya lauterborni*: (a) after Sondheim, 1929 (called *Paracineta lauterborni*); (b) after King, 1932 (called *Thecacineta edmondsi*).

Loricophrya lauterborni (Sondheim, 1929) n. comb.

Paracineta lauterborni Sondheim, 1929
Thecacineta edmondsi King, 1932
Paraloricophrya lauterborni Jankowski, 1978

DESCRIPTION (Fig. 26). This is a small (40–55 μm diameter), freshwater suctorian with a thecostyle. The ovoid body is rounded in cross-section and projects out beyond the rim of the thecostyle. Capitate tentacles radiate out from the surface of the exposed part of the zooid. Stalk region a short, button-like projection or up to half the lorica length. Lorica region cup-like with about four transverse rings. Attached to inanimate objects. Two or three contractile vacuoles. Ovoid macronucleus centrally located. Reproduction possibly by exogenous budding.

Loricophrya multitentaculata (Sand, 1895) n. comb.

Hallezia multitentaculata Sand, 1895
Acineta multitentaculata Sand, 1899
Paracineta multitentaculata Collin, 1912
Spongiophrya multitentaculata Jankowski, 1978

DESCRIPTION (Fig. 27). This is a large (304 μm long), marine suctorian with a thecostyle. The cylindrical body is rounded in cross-section and only the small posterior part is housed in the cup-like thecostyle. There is a single apical group of capitate tentacles on the apical surface. The thecostyle follows the outline of the body and there is a short button-like stalk region. Epizoic on sponges such as *Leucosolenia*. Contractile vacuole not observed. Macronucleus large, elongate, centrally located. Reproduction not described.

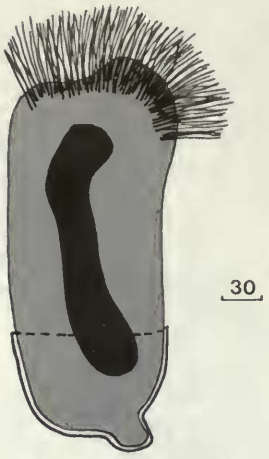

Fig. 27 *Loricophrya multitentaculata* after Sand, 1895 (called *Hallezia multitentaculata*). Note that the theca was described but not illustrated in the original description.

NOTE. The presence of a lorica was not shown in the diagram of this species but was mentioned clearly in the description. Here the presence of a lorica is indicated means of dotted lines.

Loricophrya oviformis (Dons, 1918) n. comb.

Paracineta oviformis Dons, 1918

DESCRIPTION (Fig. 28). This is a medium (85 μm long), marine suctorian with a thecostyle. The ovoid body is only partially enclosed within the thecostyle whose rim is smooth. There is a single group of tentacles which are scattered over much of the exposed body surface. The thecostyle follows the outline of the body posterior and there is a short button-like stalk-region. Epizoic on the worm *Spirorbis*. Nuclear and reproductive features not described.

Loricophrya sivertseni (Allgén, 1951) Matthes, 1956

Thecacineta sivertseni Allgén, 1951

DESCRIPTION (Fig. 29). This is a large (108 μm long), marine suctorian with a thecostyle. The elongate body is totally enclosed within the cone-shaped thecostyle whose rim is scalloped.

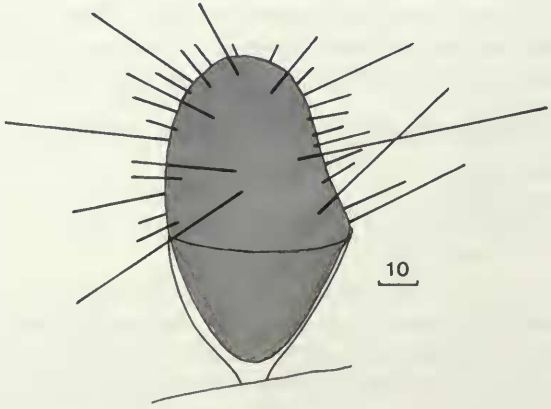

Fig. 28 *Loricophrya oviformis* after Dons, 1918 (called *Paracineta oviformis*).

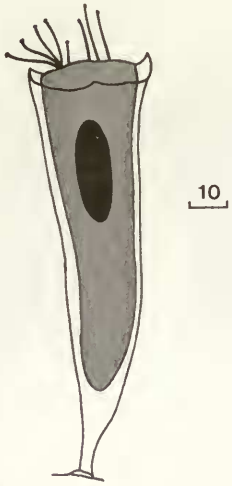

Fig. 29 *Loricophrya sivertseni* after Allgén, 1951 (called *Thecacineta sivertseni*).

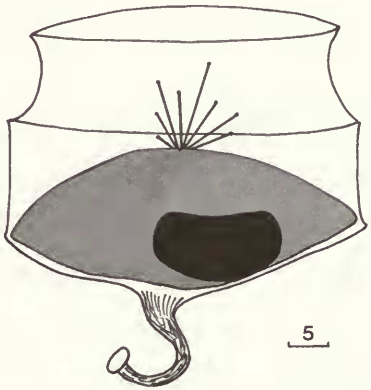

Fig. 30 *Loricophrya solenophryaformis* after Sand, 1899 (called *Acineta solenophryaformis*).

Capitate tentacles in a single apical group. There is no distinct stalk region, the lorica gradually and continually narrows posteriorly to join the attachment plate. Epizoic on the nematode worm *Spirina parasitifera*. Ovoid macronucleus centrally located. Mode of reproduction not described.

Loricophrya solenophryaformis (Sand, 1899) Matthes, 1956

Acineta solenophryaformis Sand, 1899
Thecacineta solenophryaformis Collin, 1909

DESCRIPTION (Fig. 30). This is a small (30–35 μm long), freshwater suctorian with a thecostyle. The discoid body is totally enclosed within an urn-like thecostyle whose rim is surrounded by a collar-like region. Capitate tentacles located in a single, tightly-packed, apical group which are enclosed within the thecostyle. There is a short but distinct, tubular stalk region. Attached to freshwater algae. Ovoid macronucleus located posteriorly. Mode of reproduction not described.

Loricophrya stresemanni (Allgén, 1951) Matthes, 1956

Paracineta stresemanni Allgén, 1951

DESCRIPTION (Fig. 31). This is a small (40 μm long), marine suctorian with a thecostyle. The

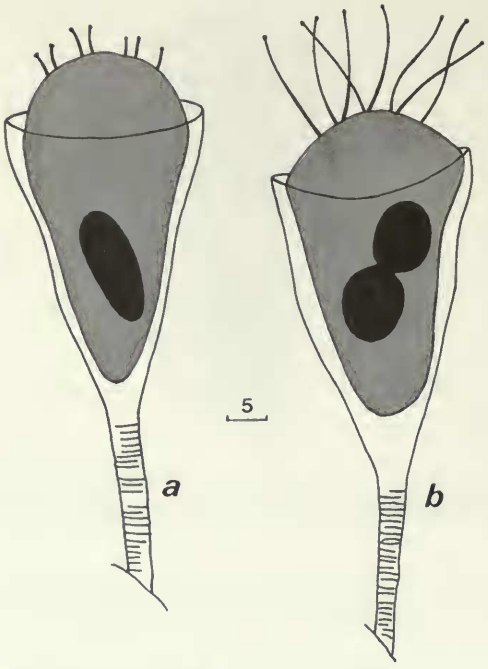

Fig. 31 *Loricophrya stresemanni*: (a,b) after Allgén, 1951 (called *Paracineta stresemanni*).

elongate body is mostly enclosed within a cone-shaped thecostyle whose rim is smooth. Capitate tentacles in a single apical group. There is a distinct stalk region which is about half the lorica length and is striated transversely. Epizoic on the nematode worm *Spirina parasitifera*. Ovoid macronucleus centrally located. Mode of reproduction not described.

Loricophrya trichophora (Allgén, 1951) Matthes, 1956

Thecacineta trichophora Allgén, 1951
Thecacineta longe-petiolatus Allgén, 1951

DESCRIPTION (Fig. 32). This is a medium (80 μm long), marine suctorian with a thecostyle. The elongate body is totally enclosed within an ovoid thecostyle whose rim is smooth. Capitate tentacles in a single apical group. There is a distinct stalk region which is about half the lorica length, not striated. Epizoic on the nematode worm *Spirina parasitifera*. Ovoid macronucleus centrally located. Mode of reproduction not described.

Loricophrya tuba (Zelinka, 1914) n. comb.

Acineta tuba Zelinka, 1914
Paracineta tuba Kahl, 1934
Corynacineta tuba Jankowski, 1978

DESCRIPTION (Fig. 33). This is a small (25–32 μm long), marine suctorian with a thecostyle. The pyriform body is enclosed within the apical quarter of the elongated cone-like thecostyle. Tentacles emerge from the apical surface, not in fascicles. There is no distinct stalk region, the lorica gradually and continually narrows posteriorly to join the substratum. Epizoic on the shells of echinoderms. Ovoid macronucleus centrally located. Mode of reproduction not described.

Genus ***ANTHACINETA*** Jankowski, 1978

Acineta Ehrenberg, 1833 *pro parte*
Noracineta Jankowski, 1978

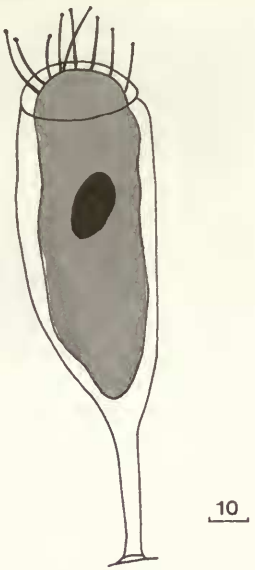

Fig. 32 *Loricophrya trichophora* after Allgén, 1951 (called *Paracineta trichophora*).

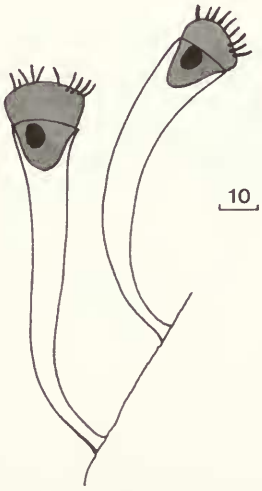

Fig. 33 *Loricophrya tuba* after Zelinka, 1914 (called *Acineta tuba*).

The genus *Anthacineta* was erected by Jankowski (1978) for *Acineta craterellus* Collin, 1909 giving the following brief diagnosis 'semi-lorica – stylotheca'. According to that brief definition the genus could be transferred to *Paracineta* and several other similar genera as a junior synonym. It can only be classified as a distinct genus if the two fascicles of tentacles and rounded transverse section to the body are taken into account. Here the diagnosis has been expanded and one other species, *Acineta infundibuliformis* Wang & Nie, 1933, has been transferred to it for the first time.

Diagnosis of *Anthacineta*

Marine suctorians with thecostyle. Zooid only partly enclosed in the semi-lorica part of the thecostyle which has a long stem. Body ovoid, rounded in cross-section. Two fascicles of capitate tentacles present, one either side of the zooid. Mode of reproduction not recorded.

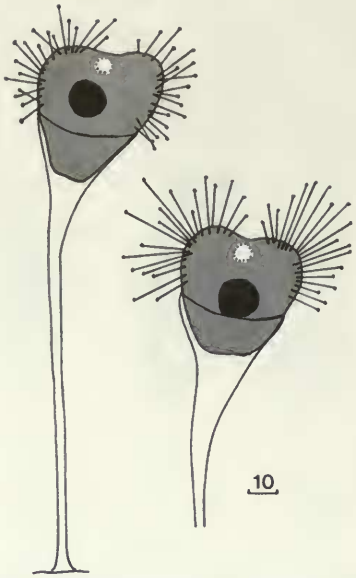

Fig. 34 *Anthacineta craterellus* after Collin, 1912 (called *Acineta craterellus*).

Key to the species of *Anthacineta*

1 Zooid wider than long, contractile vacuole in posterior body half. Thecostyle narrows abruptly to form stalk-like region . . . . . ***A. infundibuliformis***
Zooid longer than wide, contractile vacuole in anterior body half. Thecostyle narrows consistently to form the stalk-like region . . . . . ***S. craterellus***

Species descriptions

Anthacineta craterellus (Collin, 1909) Jankowski, 1978

Acineta tuberosa Sand, 1901 *pro parte*
Acineta craterellus Collin, 1909

DESCRIPTION (Fig. 34). This the type species is a small (50 μm long), marine suctorian with a thecostyle. The ovoid to pyriform body is rounded in cross-section and about half of it protrudes beyond the rim of the semi-lorica part of the thecostyle. There are two anterio–lateral fascicles of capitate tentacles. The lorica part of the thecostyle is short and cone-like, narrowing gently posteriorly to form the hollow stem region that is at least twice the length of the zooid. Epizoic on bryozoa. Single contractile vacuole situated apically between fascicles. Spherical macronucleus centrally located. Reproduction not described.

Anthacineta infundibuliformis (Wang & Nie, 1933) n. comb.

Acineta infundibuliformis Wang & Nie, 1933
Noracineta infundibuliformis Jankowski, 1978

DESCRIPTION (Fig. 35). This is a small (50 μm long), marine suctorian with a thecostyle. The wedge-shaped body is rounded in cross-section and about half of it protrudes beyond the rim of the semi-lorica part of the thecostyle. There are two lateral fascicles of capitate tentacles. The lorica part of the thecostyle is short and cone-like, narrowing abruptly posteriorly to form the hollow stem region that is about the length of the lorica. Attached to marine algae. Single contractile vacuole situated posteriorly. Ovoid macronucleus centrally located. Reproduction not described.

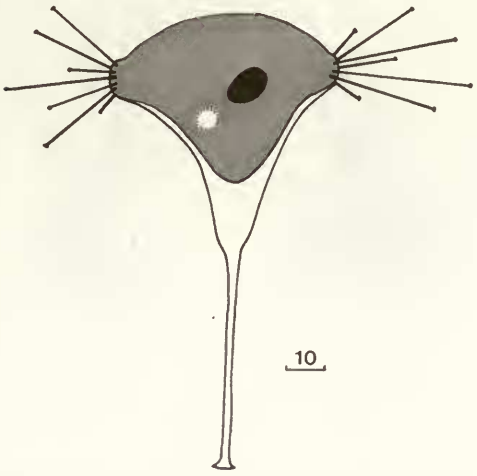

Fig. 35 *Anthacineta infundibuliformis* after Wang & Nie, 1933 (called *Acineta infundibuliformis*).

Genus ***FLECTACINETA*** Jankowski, 1978

Acineta Ehrenberg, 1833 *pro parte*
Podophrya Ehrenberg, 1833 *pro parte*
Alderia Alder, 1851
Paracineta Collin, 1911 *pro parte*

The genus was erected by Jankowski (1978) for *Acineta livadiana* Mereschowsky, 1881 who gave the following brief diagnosis, 'with stylotheca and apical tentacles'. The stalk is normally shown as being hollow but not as an extension of the lorica as the term stylotheca implies. Thus the diagnosis has been emended slightly and expanded for the sake of clarity. Two species *Paracineta dadyi* (Daday, 1886) Kahl, 1934 and *Acineta elegans* Imhoff, 1883 have been transferred to the genus for the first time.

Diagnosis of *Flectacineta*

Marine loricate suctorians. Ovoid body, rounded in cross-section lying within lorica. Capitate tentacles restricted to single apical group. Thecostyle lorica rim characteristically inverted at apex, mounted upon a hollow stalk. Reproduction by exogenous budding.

Key to the species of *Flectacineta*

1	Rim of lorica smooth, junction between stalk and lorica simple	2
	Rim of lorica scalloped, junction between stalk and lorica complex	***F. elegans***
2	Wall or lorica divided into an inner and outer wall near aperture	***F. dadyi***
	Wall of lorica not divided	***F. livadiana***

Species descriptions

Flectacineta livadiana (Mereschkowsky, 1881) Jankowski, 1978

Cothurnia havniensis Ehrenberg, 1838
Alderia pyriformis Alder, 1851
Podophrya pyriformis Pritchard, 1861
Acineta livadiana Mereschkowsky, 1881
Acineta neapolitana Daday, 1886
Acineta sp. Robin, 1879
Paracineta neapolitana Kahl, 1934

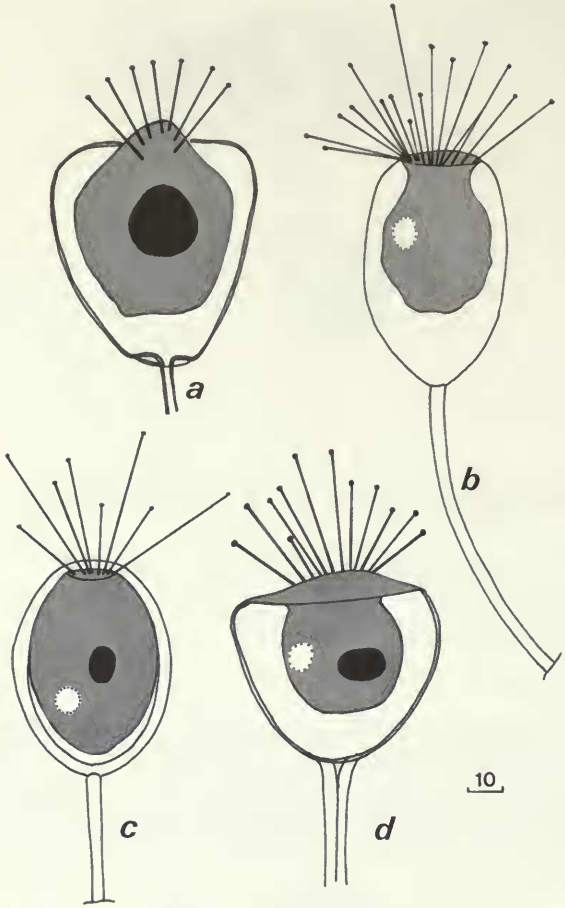

Fig. 36 *Flectacineta livadiana*: (a) after Sand, 1895 (called *Acineta livadiana*); after Mereschkowsky, 1881 (called *Acineta livadiana*); (c) after Wang & Nie, 1933 (called *Acineta livadiana*); (d) after Daday, 1886 (called *Acineta neapolitana*).

DESCRIPTION (Fig. 36). This the type species is a small to medium (30–80 μm long), marine, loricate suctorian. The small ovoid body is rounded in cross-section and is completely enclosed within the lorica. There is a single apical group of capitate tentacles. The lorica is ovoid with an inverted rim that forms a small aperture. The stem region is distinct and most diagrams show that there is usually at least a narrow channel through the centre. Length of stem variable. Epizoic on hydroids and marine algae. Single contractile vacuole situated laterally. Ovoid macronucleus centrally located. Reproduction by exogenous budding.

Flectacineta dadayi (Daday, 1886) n. comb.

Acineta livadiana Daday, 1886
Paracineta livadiana Collin, 1912 *pro parte*
Paracineta dadayi Kahl, 1934

DESCRIPTION (Fig. 37). This is a small (45 μm long), marine, loricate suctorian. The small ovoid body is rounded in cross-section and is completely enclosed within the lorica. There is a single apical group of capitate tentacles. The lorica is ovoid to cone-shaped with an inverted rim that forms a small aperture. The lorica surrounding the aperture is divided into an inner and an outer wall. The hollow stem region is distinct and some diagrams show that there is a narrow

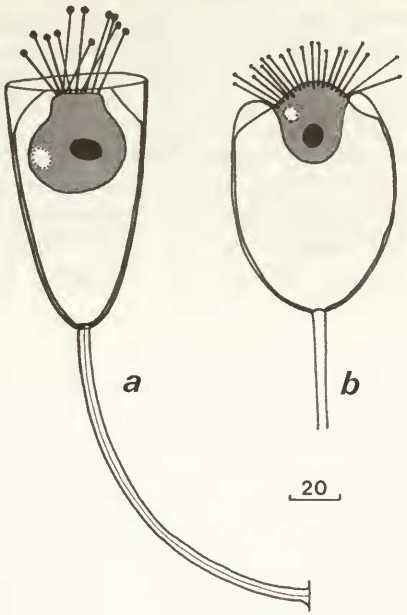

Fig. 37 *Flectacineta dadayi*: (a) after Daday, 1886 (called *Acineta livadiana*); (b) after Collin, 1912 (called *Paracineta livadiana*).

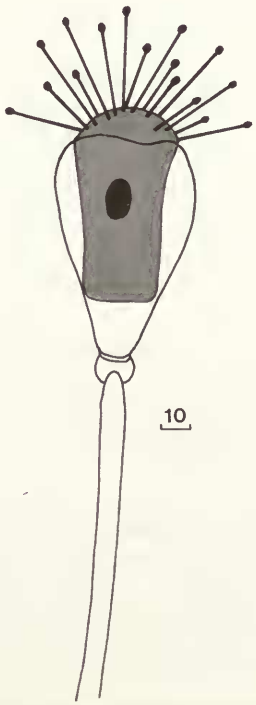

Fig. 38 *Flectacineta elegans* after Imhoff, 1884 (called *Acineta elegans*).

channel through the centre. Length of stem region about that of lorica. Epizoic on hydroids and marine algae. Single contractile vacuole situated laterally. Ovoid macronucleus centrally located. Reproduction not described.

Flectacineta elegans (Imhoff, 1883) n. comb.

Acineta elegans Imhoff, 1883 *non* Maskell, 1886
Paracineta elegans Collin, 1912

DESCRIPTION (Fig. 38). This is a medium (70 μm long), marine, loricate suctorian. The rectangular body is rounded in cross-section and is completely enclosed within the lorica. There is a single apical group of capitate tentacles. The lorica is pyriform with an inverted scalloped rim that forms a small aperture. The hollow stem region is distinct and joins the lorica via an intervening ball-like joint. Length of stem at least twice that of the lorica. Epizoic on the cladoceran *Bythotrephes longimanus*. Single apical contractile vacuole. Ovoid macronucleus centrally located. Reproduction not described.

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Names given in roman refer to synonyms